2005 Summer Outlook

Joint Agency Energy Action Plan Meeting
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Background

- Workshop held on March 21 to receive stakeholder input on the 2005 Summer Outlook.
- At the March 23rd EAP meeting, staff asked to propose new outlook table format that includes Demand Response and Interruptible programs to meet adverse conditions.
- Staff have incorporated comments from stakeholders, updated tables to reflect latest generation information, and developed a revised format that includes Demand Response and Interruptible programs as well as Resource Planning Conventions.

California Energy Action Plan

Previous Table w/Updates - For Comparison Purposes
CA ISO SP26
2005 Monthly Outlook

Increased Gen 100MW due to high hydro/snowpack in So. Cal.

Malburg -129 MW slipped to Oct

Magnolia -142MW slipped to July. Rerated Ramco +5MW, and SCE Mothball +1MW

+1 MW renewable

Line		June	July	August	September
1	Existing Generation [1]	20,186	20,335	20,957	20,957
2	Retirements (Known)	-530			
3	Retirements (High Risk)	-146			
4	High Probability CA Additions	825	622	0	2
5	Forced Outages	-1,200	-1,200	-1,200	-1,200
6	Zonal Transmission Limitation [2]	-800	-800	-800	-800
7	Net Interchange [3]	9,903	9,903	9,903	9,903
8	Total Supply (MW)	28,238	28,860	28,860	28,862
9	1-in-2 Summer Temperature Demand (Normal)	24,782	26,275	26,691	27,001
10	Projected Resource Margin (1-in-2)*	18.3%	12.7%	10.4%	8.8%
11	1-in-10 Summer Temperature Demand (Hot)	26,667	28,273	28,721	29,054
12	Projected Resource Margin (1-in-10)*	7.6%	2.6%	0.6%	-0.8%
13	MW needed to meet 7.0% Reserve in SP26	0	979	1,458	1,813
14	Surplus MW above 7.0% Reserve in SP26	117	0	0	0

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel

[2] Values provided by CA ISO.

[3] 2004 CA ISO estimates **DC imports of 1,500 MW,** Path 26 2,700 MW, **SW imports 2,500 MW,** Dynamic 1,003 MW and CEC estimate of **LADWP Control Area interchange of 1,000 MW** . 2005 estimate increases **DC transfer capability by 500 MW** , Path 26 by 300 MW and **North of Miguel by 400 MW** . Imports supplying own reserves are in bold text.

* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - **Imports with own reserves**)/(Demand - **Imports with own reserves**))-1

California Energy Action Plan

CA ISO SP26
2005 Monthly Outlook

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation [1]	20,186	20,481	21,103	21,103
2	Retirements (Known)	-530	0	0	0
3	High Probability CA Additions	825	622	0	2
4	Net Interchange [2]	9,903	9,903	9,903	9,903
5	Total Net Generation (MW)	30,384	31,006	31,006	31,008
6	1-in-2 Summer Temperature Demand (Normal) [3]	24,782	26,275	26,691	27,001
7	Demand Response (DR)	395	395	395	395
8	Interruptible/Curtailable Programs	807	807	807	807
9	Planning Reserve [4]	27.5%	22.6%	20.7%	19.3%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-844	-844	-844	-844
11	Zonal Transmission Limitation [5]	-800	-800	-800	-800
12	Expected Operating Generation with Outages/Limitations [6]	28,740	29,362	29,362	29,364
13	Expected Operating Reserve Margin (1-in-2) [7]	21.0%	15.2%	12.8%	11.2%
	Adverse Conditions				
14	Retirements (High Risk)	-146	-146	-146	-146
15	High Forced Outages (1 STD above average)	-356	-356	-356	-356
16	Adverse Temperature Impact (1-in-10)	-1,885	-1,998	-2,030	-2,053
17	Adverse Scenario Reserve Margin (w/o DR and Interruptibles) [7]	7.6%	2.6%	0.6%	-0.8%
18	Adverse Scenario Reserve Margin w/DR [8]	9.5%	4.4%	2.3%	0.9%
19	Adverse Scenario Reserve Margin w/DR and Interruptibles [8]	13.4%	8.0%	5.9%	4.4%
20	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	256	611
21	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	1,319	223	0	0

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel.

[2] 2005 estimate of the following Net Imports: **DC imports 2,000 MW, SW imports 2,900 MW,** Imports from NP26 3,000 MW, **LADWP Control Area imports 1,000 MW,** SW imports w/o reserves 1,003 MW. **Imports with own reserves highlighted in bold.**

[3] Demand forecast completed 3/21/2005.

[4] Planning Reserve calculation ((Total Generation+Demand Response+Interruptibles)/Normal Demand)-1.

[5] Estimates provided by CA ISO.

[6] Does not include Demand Response/Interruptible Programs due to Reserve Margins in excess of 5% (Stage 2).

[7] Operating Reserve calculation ((Operating Generation- **Imports with Reserves**)/(Demand- **Imports with Reserves**))-1. See Footnote 2.

[8] Demand Response and Interruptibles added to Operating Generation in Reserve Margin formula from Footnote 7.

California Energy Action Plan

CA ISO NP26
2005 Monthly Outlook

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation	24,570	24,736	25,397	25,397
2	Retirements (Known)	0	0	0	0
3	High Probability CA Additions	166	661	0	2
4	Net Interchange [1]	3,675	3,675	3,675	3,675
5	Total Net Generation (MW)	28,411	29,072	29,072	29,074
6	1-in-2 Summer Temperature Demand (Normal) [2]	20,839	21,289	21,003	20,233
7	Demand Response (DR)	296	296	296	296
8	Interruptible/Curtailable Programs	342	342	342	342
9	Planning Reserve [3]	39.4%	39.6%	41.5%	46.8%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-1,100	-1,100	-1,100	-1,100
11	Zonal Transmission Limitation [4]	0	0	0	0
12	Expected Operating Generation with Outages/Limitations [5]	27,311	27,972	27,972	27,974
13	Expected Operating Reserve Margin (1-in-2) [6]	37.7%	37.9%	40.2%	46.8%
	Adverse Conditions				
14	Retirements (High Risk)	-326	-326	-326	-326
15	High Forced Outages (1 STD above average)	-500	-500	-500	-500
16	Adverse Temperature Impact (1-in-10)	-1,391	-1,421	-1,402	-1,351
17	Adverse Scenario Reserve Margin (w/o DR and Interruptibles) [6]	22.9%	23.3%	25.3%	31.1%
18	Adverse Scenario Reserve Margin w/DR [7]	24.5%	24.9%	26.9%	32.7%
19	Adverse Scenario Reserve Margin w/DR and Interruptibles [7]	26.4%	26.7%	28.7%	34.6%
20	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
21	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	3,594	3,742	4,068	4,948

[1] 2005 estimate of the following Net Imports: **NW imports (COI) 4,000 MW and SMUD Export (325 MW). All Imports assumed to carry own reserves.**
[2] Demand forecast completed 3/21/2005.
[3] Planning Reserve calculation ((Total Generation+Demand Response+Interruptibles)/Normal Demand)-1.
[4] Estimates provided by CA ISO.
[5] Does not include Demand Response/Interruptible Programs due to reserve margins in excess of 5% (Stage 2).
[6] Operating Reserve calculation ((Operating Generation- **Imports with Reserves**)/(Demand- **Imports with Reserves**))-1. See Footnote 1.
[7] Demand Response and Interruptibles added to Operating Generation in Reserve Margin formula from Footnote 6.

California Energy Action Plan

CA ISO
2005 Monthly Outlook

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation [1]	44,756	45,217	46,500	46,500
2	Retirements (Known)	-530	0	0	0
3	High Probability CA Additions	991	1,283	0	4
4	Net Interchange [2]	10,578	10,578	10,578	10,578
5	Total Net Generation (MW)	55,795	57,078	57,078	57,082
6	1-in-2 Summer Temperature Demand (Normal) [3]	45,085	47,004	47,134	46,679
7	Demand Response (DR)	691	691	691	691
8	Interruptible/Curtailable Programs	1,149	1,149	1,149	1,149
9	Planning Reserve [4]	27.8%	25.3%	25.0%	26.2%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-2,132	-2,132	-2,132	-2,132
11	Zonal Transmission Limitation [5]	-800	-800	-800	-800
12	Expected Operating Generation with Outages/Limitations [6]	52,863	54,146	54,146	54,150
13	Expected Operating Reserve Margin (1-in-2) [7]	21.9%	19.1%	18.7%	20.1%
	Adverse Conditions				
14	Retirements (High Risk)	-472	-472	-472	-472
15	High Forced Outages (1 STD above average)	-668	-668	-668	-668
16	Adverse Temperature Impact (1-in-10)	-3,238	-3,380	-3,392	-3,364
17	Adverse Scenario Reserve Margin (w/o DR and Interruptibles) [7]	8.8%	6.4%	6.1%	7.3%
18	Adverse Scenario Reserve Margin w/DR [8]	10.6%	8.1%	7.7%	9.0%
19	Adverse Scenario Reserve Margin w/DR and Interruptibles [8]	13.5%	10.9%	10.5%	11.9%
20	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
21	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	2,528	1,605	1,453	1,974

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel.

[2] 2005 estimate of the following Net Imports: **DC imports 2,000 MW, SW imports 2,900 MW, NW imports (COI) 4,000 MW**, **LADWP Control Area imports 1,000 MW,** SW imports w/o reserves 1,003 MW and **SMUD Export (325 MW)**. **Imports with own reserves in bold.**

[3] Demand forecast completed 3/21/2005.

[4] Planning Reserve calculation ((Total Generation+Demand Response+Interruptibles)/Normal Demand)-1.

[5] Estimates provided by CA ISO.

[6] Does not include Demand Response/Interruptible Programs due to Reserve Margins in excess of 5% (Stage 2).

[7] Operating Reserve calculation ((Operating Generation- **Imports with Reserves**)/(Demand- **Imports with Reserves**))-1. See Footnote 2.

[8] Demand Response and Interruptibles added to Operating Generation in Reserve Margin formula from Footnote 7.

California Energy Action Plan

Statewide
2005 Monthly Outlook

	Resource Adequacy Planning Conventions	June	July	August	September
1	Existing Generation [1]	53,870	54,580	56,036	56,036
2	Retirements (Known)	-850	0	0	0
3	High Probability CA Additions	1,560	1,456	0	4
4	Net Interchange [2]	12,921	12,921	12,921	12,921
5	Total Net Generation (MW)	67,501	68,957	68,957	68,961
6	1-in-2 Summer Temperature Demand (Normal) [3]	54,900	57,365	57,913	57,015
7	Demand Response (DR)	691	691	691	691
8	Interruptible/Curtailable Programs	1,349	1,349	1,349	1,349
9	Planning Reserve [4]	26.7%	23.8%	22.6%	24.5%
	Expected Operating Conditions				
10	Outages (Average forced + planned)	-2,300	-2,300	-2,300	-2,300
11	Zonal Transmission Limitation [5]	-800	-800	-800	-800
12	Expected Operating Generation with Outages/Limitations [6]	64,401	65,857	65,857	65,861
13	Expected Operating Reserve Margin (1-in-2) [7]	22.1%	18.7%	17.3%	19.6%
	Adverse Conditions				
14	Retirements (High Risk)	-472	-472	-472	-472
15	High Forced Outages (1 STD above average)	-1,200	-1,200	-1,200	-1,200
16	Adverse Temperature Impact (1-in-10)	-3,767	-3,638	-3,972	-3,922
17	Adverse Scenario Reserve Margin (w/o DR and Interruptibles) [7]	8.7%	6.5%	4.6%	6.6%
18	Adverse Scenario Reserve Margin w/DR [8]	10.2%	7.9%	6.0%	8.0%
19	Adverse Scenario Reserve Margin w/DR and Interruptibles [8]	13.1%	10.6%	8.7%	10.8%
20	Resources needed to meet 7.0% Reserve (W/DR & Interruptibles)	0	0	0	0
21	Surplus Resources Above 7.0% Reserve (W/DR & Interruptibles)	2,830	1,786	842	1,861

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel.

[2] 2005 estimate of the following Net Imports: **DC imports 2,000 MW, SW imports 2,900 MW, NW imports (COI) 4,000 MW**, **LADWP Control Area imports 2,834 MW, IID Imports 184 MW,** SW imports w/o reserves 1,003 MW **. Imports with own reserves in bold.**

[3] Demand forecast completed 3/21/2005.

[4] Planning Reserve calculation ((Total Generation+Demand Response+Interruptibles)/Normal Demand)-1.

[5] Estimates provided by CA ISO.

[6] Does not include Demand Response/Interruptible Programs due to Reserve Margins in excess of 5% (Stage 2)

Summer of 2006

- 2,556 High Probability additions expected by Summer of 2006
- 1,133 MW known and 2,776 MW at high risk of retirement
- Procurement process underway at the CPUC to achieve resource adequacy in 2006 will help ensure high risk resources remain available.
- Ongoing IEPR proceedings at the CEC will hold workshops on demand forecast and resource issues for 2006 through 2016.
- 2006 Monthly Outlook with an updated demand forecast will be published with a workshop planned for early fall.

Findings and Conclusions

- Under normal weather conditions, there should be sufficient resources to meet expected load in all regions of California without the use of Demand Response and Interruptible programs.
- If hot 1-in-10 weather occurs in Southern California, Demand Response and Interruptible programs will likely be needed to maintain reserve levels in the SP 26 region.
- Currently established 15-17 percent planning reserve targets may not provide sufficient resources to maintain a 7% operating reserve within sub-regions of a control area under adverse conditions, even with the use of Demand Response and Interruptible programs.